CLAIMS

1. A substrate processing chamber comprising:

a chamber body enclosing a substrate processing location space, wherein said chamber body includes a slit passage extending from an outside surface of said body to said substrate processing location space, said slit passage being sized to pass a substrate therethrough;

an outer slit valve door disposed at an outer position of said substrate transfer passage to selectively seal said substrate transfer passage; and

an inner slit passage door disposed at an inner position of said substrate transfer passage to selectively block said substrate transfer passage, wherein said inner position is closer to said substrate processing location space than said outer position.

2. The substrate processing chamber as in Claim 1,

wherein said inner slit passage door when positioned to block said substrate transfer passage extends beyond the edges of said passage by an overlap distance.

3. The substrate processing chamber as in Claim 2,

wherein said overlap distance is at least 1/4 inch (6.35 mm).

4. The substrate processing chamber as in Claim 2,

wherein said overlap distance is approximately 1/2 inch (12.7 mm).

5. The substrate processing chamber as in Claim 1,

wherein said inner slit passage door is curved to match the configuration of a chamber liner.

6. The substrate processing chamber as in Claim 2,

wherein said inner slit passage door is curved to match the configuration of a chamber liner.

7. The substrate processing chamber as in Claim 3,

wherein said inner slit passage door is curved to match the configuration of a chamber liner.

8. The substrate processing chamber as in Claim 1,

wherein a movement of said inner slit passage door is in a vertical direction and is selectively

controlled through movement of a bellows assembly through which a support for said door is provided.

9. The substrate processing chamber as in Claim 8,

wherein said inner slit passage door is supported by two support rods.

10. The substrate processing chamber as in Claim 9,

where a first of said two support rods is fixed to said inner slit passage door through a tightly clamped connection, while a second of said two support rods is connected to said inner slit passage door through a floating connection which maintains said inner slit valve door's orientation in a vertical direction and in a direction approximately perpendicular to a long axis of said door, and is allowed to move in a direction approximately along said long axis of said door.

11. The substrate processing chamber as in Claim 1,

wherein said inner slit passage door in a closed position is located with a gap of several ten thousandths of an inch from a surface adjacent said slit passage opening.

12. The substrate processing chamber as in Claim 8,

wherein the limit of the movement of said inner slit passage door in a vertical direction is precisely set by at least one soft stop.

13. The substrate processing chamber as in Claim 2,

wherein top and bottom portions of said inner slit passage door are beveled to match opposed portions of a portion of a surface of the chamber that they face.

14. The substrate processing chamber as in Claim 13,

wherein a center portion of said inner slit passage door is beveled to match an angled surface of a portion of a surface of said chamber through which said slit passage extends.

15. The substrate processing chamber as in Claim 1,wherein said inner slit passage door and said outer slit passage door open simultaneously to allow passage of a substrate in to and out of the chamber.

16. A substrate vacuum processing chamber liner comprising:

a liner surrounding a substrate processing location in a vacuum processing chamber, wherein said liner includes a substrate transfer opening therethrough, and

a liner door selectively movable from an open position where a substrate to be processed can be passed through the substrate transfer opening to a closed position where the liner door is positioned in close proximity to but not touching said liner all around the substrate transfer opening and the liner door blocks said substrate transfer opening and the edges of the door overlap the edge of the substrate transfer opening.

17. The substrate vacuum processing chamber liner as in Claim 16,

where the liner door is curved to match the configuration of a curved liner.

18. The substrate vacuum processing chamber liner as in Claim 16,

where a movement of the door is vertical and selectively controlled through a bellows assembly.

19. The substrate vacuum processing chamber liner as in Claim 16,

wherein said liner door when positioned to block said substrate transfer opening extends beyond the edges of said opening by an overlap distance.

20. The substrate vacuum processing chamber liner as in Claim 19,

wherein said overlap distance is at least 1/4 inch (6.35 mm).

21. The substrate vacuum processing chamber liner as in Claim 19,

wherein said overlap distance is approximately 1/2 inch (12.7 mm).

22. The substrate vacuum processing chamber liner as in Claim 16,

wherein said liner door is supported by two support rods.

23. The substrate vacuum processing chamber liner as in Claim 22,

where a first of said two support rods is fixed to said inner slit passage door through a tightly clamped connection, while a second of said two support rods is connected to said inner slit passage

door through a floating connection which maintains said inner slit valve door's orientation in a vertical direction and in a direction approximately perpendicular to a long axis of said door, and is allowed to move in a direction approximately along said long axis of said door.

24. The substrate vacuum processing chamber liner as in Claim 16,wherein said liner door in a closed position is located with a gap of several ten thousandths of an inch from a surface adjacent said slit passage opening.

25. The substrate vacuum processing chamber liner as in Claim 16,

wherein the limit of the movement of said liner door in a vertical direction is precisely set by at least one soft stop.

26. The substrate vacuum processing chamber liner as in Claim 16,

wherein top and bottom portions of said liner door are beveled to match opposed portions of a portion of a surface of the liner that they face.

27. The substrate vacuum processing chamber liner as in Claim 16,

wherein a center portion of said liner door is beveled to match an angled surface of a portion of a surface of said liner through which said opening extends.

28. The substrate vacuum processing chamber liner as in Claim 16,

wherein said liner door and an outer slit passage door of a chamber associated with said liner open simultaneously to allow passage of a substrate in to and out of the chamber.

29. A method for reducing the buildup of process byproducts on the surfaces of a substrate transfer passage and for improving the uniformity of plasma in a vacuum processing chamber comprising the steps of:

providing a movable door to selectively block said substrate transfer passage at a location adjacent to said substrate processing location in said vacuum processing chamber;

moving said movable door out of said substrate transfer passage when a substrate is being transferred to or from said substrate processing location.

30. The method of Claim 29,

where in the step of providing said door said door and door support structure is movable between a door open position and a door closed position without rubbing contact between any two items within the vacuum limits of the processing chamber.